In re Application of: Velger et at   Examiner: Tuyen Q Tra
Serial No.: 10/554,002   Group Art Unit: 2873
Filed: August 18, 2006   Attorney Docket: 51381
Office Action Mailing Date: December 6, 2010   Confirmation No.: 5153

In the Claims:

1.   (Currently Amended) Geometric-waveform oscillator for processing light, the geometric-waveform oscillator comprising:

at least one light processing module and a plurality of additional masses coupled to each other via a plurality of elastic elements, forming altogether a system of coupled oscillators characterized by n eigenvectors and n eignevalues respectively corresponding to n frequencies, ~~at least one of said masses comprising a light processing module~~; and

at least one force producing element configured for applying to said system of coupled oscillators a periodic driving force characterized by a fundamental frequency ω_0;~~coupled with at least one of said masses, said at least one force producing element applying at least one force to said at least one masses; and~~

~~a plurality of elastic elements, said elastic elements coupling said masses together, said elastic elements coupling said at least one masses with a respective at least one support,~~

wherein for a given mass value of said light processing module, the mass values of said masses~~the force value of said at least one force,~~ and the stiffness coefficients of said elastic elements, are selected such that (i) each of said n corresponding frequencies is an integer multiplication of said ω_0, and (ii) at least one of said eigenvectors corresponds to oscillation of said light processing module ~~oscillates~~according to ~~said~~a geometric-waveform selected from the list consisting of

triangular;

non-sinusoidal; and

square.

2.   (Cancelled)

3.   (Currently Amended) The geometric-waveform oscillator according to claim 2̶1, wherein said triangular waveform is symmetric.

4.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said triangular waveform is asymmetric.

5.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said light processing module reflects light.

6.   (Previously Presented)   The   geometric-waveform   oscillator according to claim 1, wherein said light processing module oscillates in an oscillatory motion selected form the list consisting of:

linear;

planar;

spatial; and

angular.

7.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said at least one force producing element is selected from the list consisting of:

mechanical;

electronic;

electromechanical;

electrostatic;

biomechanical;

thermodynamic; and

fluidic element.

8.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said at least one force producing element is located at said at least one support.

9.   (Original)   The geometric-waveform oscillator according to claim 1, wherein each of said masses, said at least one force producing element, and said elastic elements are incorporated with a microelectromechanical system.

10.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said light processing module is located between respective two of said masses.

11.   (Original)   The geometric-waveform oscillator according to claim 10, wherein respective pairs of said at least two masses are symmetrically located at two sides of said light processing module.

12.   (Original)   The geometric-waveform oscillator according to claim 10, wherein respective pairs of said at least two located at two sides of said light processing module have substantially the same geometric and physical characteristics.

13.   (Original)   The geometric-waveform oscillator according to claim 1, wherein said masses and said elastic elements are located between two of said respective at least one support.

14.   (Original)   The geometric-waveform oscillator according to claim 1, wherein the densities of said masses and said elastic elements are substantially the same.

15-17 (Cancelled)

18.   (New) The geometric-waveform oscillator according to claim 1, wherein said at least one light processing module, said plurality of masses and said plurality of elastic elements form a system of five coupled oscillators characterized by five eigenvectors and five eigenvalues.

19.   (New) The geometric-waveform oscillator according to claim 1, wherein said periodic driving force is modulated according to a sum of cosines.